

A NEW SPECIES OF *MELOCACTUS* (CACTACEAE) FROM CENTRAL CUBA

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ABSTRACT

Melocactus perezassoi (Cactaceae) is described as endemic to the exposed cliffs of the northern mountain ranges of Guamuhaya (Escambray) in central Cuba. The new species is related to *Melocactus harlowii* (Britton & Rose) Vaupel from the coastal terraces of south-eastern Cuba, but exhibits more separate areoles with a higher number of spines which are less stout, longer flowers with stigmatic lobes not exerted above the stamens, and long, clavate fruits. This endemic and potentially threatened species may benefit from management practices. Comparative illustrations of the new taxon and its nearest relative are provided, and also a key for the Cuban species of *Melocactus*

KEY WORDS: *Melocactus*, Cactaceae, Cuba, West Indies

The *Melocactus* were among the first cacti known in Europe. At first they were called *Echinomelocactus*, but this eventually was shortened to *Melocactus* by Tournefort, and then to *Cactus* by Linnaeus.

When Link & Otto (1827) restored the name *Melocactus*, the genus included only four species, of which three, by modern interpretation, are endemic to the Caribbean (Taylor 1991). The novelty described here represents the third species of *Melocactus* recognized in central Cuba, and the second taxon described in the Villa Clara province within the last two decades.

Melocactus perezassoi Areces, *sp. nov.* (Figure 1). TYPE: CUBA. Prov. Villa Clara: northern ranges of Guamuhaya (Escambray), vicinity of Jibacoa, on an exposed cliff facing the river dam, 22° 01' 28" N, 80° 00' 00" W, 15 April 1991, *W. Figueredo, E. Sardiñas, & J.A. Sánchez 2366* (HOLOTYPE: MNHN; Isotype: HAC).

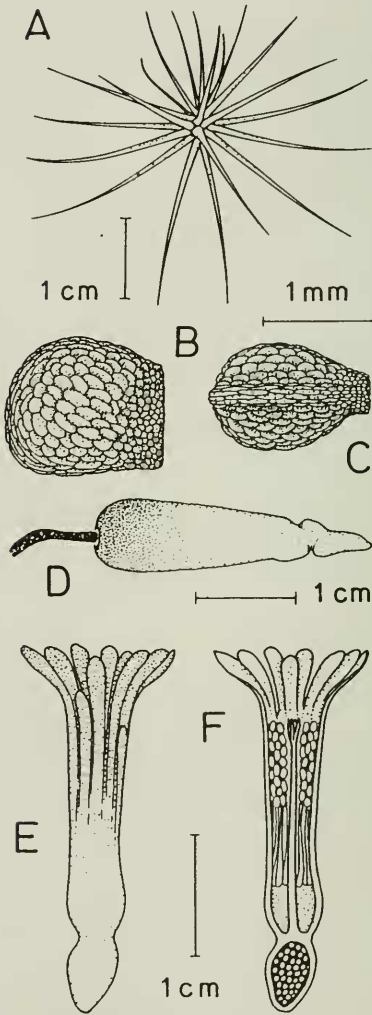


Figure 1. *Melocactus perezassoi*. A. Typical areole with 16 radial spines and 4 centrals. B. Seed, lateral view. C. Seed, dorsal view. D. Flower. E. Flower, sectioned, showing stamens, nectar chamber, style with the stigma lobes not exserted above the stamens, and ovary. F. Fruit. All figures from the type specimen.

Caulis subglobosus vel ovoideus 11.0-16.5 cm alt. et 10.5-15.0 cm diam.; costis 12-13 verticalibus, crenatis ad areolas impressis; areolis 9-15 mm instructis, spinis 17-24, 0.5-3.0 cm longis, flavidis usque pallide ochraceis; cephalio 6.8-8.3 cm diam., semigloboso vel cylindrico-elongato usque 12-14 cm alt., griseo-albido, apicem versus cremeo, pilis salmoneis vel pallide croceis usque rufis intermixtis; floribus dilute roseis 2.8-3.4 cm longis et 1.2-1.5 cm diam., cephalio inmersis apice tantum 6-8 mm superantibus, segmentis linearibus ad apicem late rotundatis, 4-7 mm longis, stigmatibus inserto apicem antherarum vix attingenti; fructibus clavatis superne pallide roseis 2.2-2.8 cm longis.

Stem subglobose to ovoid (11.0-)12.0-14.0(-16.5) cm tall to the base of cephalium and (10.5-)11.0-13.5(-15.0) cm in diameter, light to yellowish-green, simple or sometimes ramified on top of old individuals; ribs 12-13 vertical, with an acute edge between the areoles, 22-30 mm high and 18-26 mm broad near widest part of stem, 9-16 mm high and 13-21 mm broad at the base of cephalium; areoles longitudinally elliptic to oblong-elliptic, 6-8 mm long and 4-6 mm broad, 9-15 mm apart on the ribs, 9-15 visible per rib in lateral view, sunken into notches 2-4 mm deep. Spines 17-24, 0.5-3.0 cm long, rather slender, terete, pale yellow changing to horn-color or a little verging to brown with age, scarcely overlapping those from areoles on adjacent ribs; radial spines 14-19, slightly curved upwards, 0.5-2.5 cm long and 0.4-0.8 mm in diameter, upper 1-4 often short and slender, lowermost 1-5 largest, remainder graded in size; centrals 3-5, commonly 2-3 cm long, to 0.7-0.9 mm in diameter, spreading, somewhat upcurved or straight. Cephalium hemispherical to cylindric-elongated, more than half as broad as the vegetative stem, 6.8-8.3 cm in diameter and commonly 4-9 cm tall, occasionally 12-14 cm tall, composed of dense wool and clusters of fine bristles spaced 2-4 mm, bristles 23-30 mm long, exerted 3-7 mm, salmon colored to pale orange-red or brownish-red, wool at apex cream, later greyish-white. Flowers pale pink, 2.8-3.4 cm long, 1.2-1.5 cm wide, exerted to 6-8 mm above cephalium surface, opening at 3 p.m. and closing after 6:30 p.m.; pericarpel 6-7 mm long and 3.5-4.0 mm broad; nectar-chamber 3.2-3.9 mm long and 3.0-3.5 mm wide, remainder of tube 9.1-10.3 mm long and 4.3-5.2 mm in diameter; perianth segments 21-29, 15-22 visible from above, expanding fully at an angle of 40-50°, linear, broadly rounded at tip, the outer series scarcely longer than the inner segments, 4-7 mm long and 1.2-2.0 mm wide; anthers oblong, forming a girdle 6.5-7.5 mm high around the style and stigma; style straight, white, including the stigma to 15.0-16.5 mm long, stigma lobes 7, whitish, subulate, 2.0-2.5 mm long, not exerted above the stamens. Fruits faintly to pale pink at apex, fading to pure white below middle or at base, clavate, terete, the base frequently folded into 2-3 pleats widthwise, 2.3-2.8 cm long and 6-8 mm broad, with a 15-18 mm

long withered floral remain on top. Seeds commonly 19-23 per fruit, nearly globose, 1.3-1.4 mm long and 1.1-1.3 mm wide, black, smooth, with scarcely convex, somewhat elongated testa-cells on sides, more elongated and narrowed at periphery, and much more reduced in size, isodiametric, and not raised at the hilum end.

ETYMOLOGY: *Melocactus perezassoi* is named in honor of A. Pérez Asso of the Museo Nacional de Historia Natural, the first Cuban naturalist to collect the species, in the early 1980's.

DISTRIBUTION: Known only from the type locality.

In general aspect, as well as in certain details of the cephalium, *Melocactus perezassoi* is similar to *M. harlowii* (Britton & Rose) Vaupel and is no doubt a close relative. However, it can be readily distinguished from the latter by its areoles, more separated and with a greater number of spines, which are a little less stout and pale yellow (not reddish) when young; the outstanding vertical growth of its cephalium, and its larger flowers with linear perianth segments broadly rounded at tip; and a shorter style with the stigma not exerted above the upper stamens. The new taxon can also be differentiated from *M. harlowii* by its long clavate (not obovoid) fruits, faintly to pale pink (not red) at apex, and its bigger seeds (Figure 2). It will perhaps be useful to distinguish *M. perezassoi* from this and all Cuban species of *Melocactus* which I recognize by contrasting some important diagnostic characters in key form:

1. Ribs 8-9; fully open flowers 5-7 mm diam.; fruit to 1.5 cm long.
 2. Stem less than 10 cm diam.; spines 7-9 per areole, centrals 1. *M. matanzanus* León
 2. Stem more than 10 cm diam.; spines 5-6 per areole, centrals lacking. *M. actinacanthus* Areces
1. Ribs 10-13; fully open flowers more than 7 mm diam.; fruit length exceeding 1.5 cm.
 3. Stem simple, not ramified; central spines 1-2, clearly distinguishable from radials.
 4. Stem globose-depressed; central spines straight, exceeding 3 cm long. *M. quitartii* León
 4. Stem ovoid to subconical, not depressed; central spines somewhat inflexed, 3 cm long at most. *M. holguinensis* Areces
 3. Stem of old specimens often ramified; central spines 2-4, hardly distinguishable from radials.
 5. Spines very stout, the central ones exceeding 4 cm in length, and more than 3 mm thick at base. *M. acunai* León

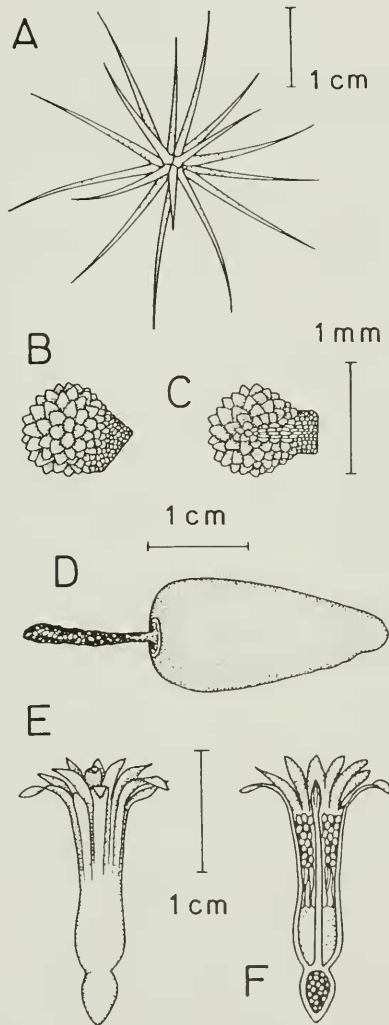


Figure 2. *Melocactus harlowii*. A. Areole with 12 radial spines. B. Seed, lateral view. C. Seed, dorsal view. D. Flower. E. Flower, sectioned, showing stamens, nectar chamber, style with the stigma exserted above the stamens, and ovary. F. Fruit. A from a photograph taken by the author at Tortuguilla, prov. Guantanamo. D, E from specimens growing at Cuevas del Turquino, prov. Santiago de Cuba (*Areces 3013* [MNHN spirit collection]). B, C, F from a cultivated plant collected at Uvero, prov. Santiago de Cuba (*Areces 3002* [MNHN spirit collection]).

5. Spines not markedly stout (sometimes thin and weak), none of them reaching 4 cm in length nor 3 mm thick.
 6. Spines mostly 9-16 per areole, about 1 mm thick at base. .
 *M. harlowii* (Britton & Rose) Vaupel
 6. Spines 17-24 per areole, less than 1 mm thick at base.
 7. Ribs 10; fruits obovate, 1.4-2.1 cm long.
 *M. radoczii* Mészáros
 7. Ribs 12-13; fruits clavate, 2.3-2.8 cm long.
 *M. perezassoi* Areces

Melocactus perezassoi is only separated 30 km from its closest geographical ally, *M. actinacanthus* Areces (1976), a very different, unrelated, serpentine-dweller in the *M. matanzanus* León (1934) group. Paradoxically, *M. harlowii*, its near relative from the systematic standpoint, is a geographically remote species within the main island of Cuba, being more than 400 km separated from the novelty described here.

CURRENT STATUS OF *MELOCACTUS PEREZASSOI* AND MANAGEMENT RECOMMENDATIONS

Melocactus perezassoi seems to be a relict of drier climates on ancient coastal areas conformed by the marine transgressions that made an archipelago of what was to become later the main island of Cuba. Now, it is restricted to the exposed rocky cliff at the type locality at Jibacoa. In 1992, I searched for the species in areas surrounding the Jibacoa River valley and discovered no additional populations, a situation very much like the one exhibited by *M. actinacanthus*, which is now highly endangered.

Although *Melocactus perezassoi* is protected to a certain extent by the inaccessibility of its location, the risk of losing the small population to such threats as a natural landslide, wildfire, or by disturbances due to human activity, should be taken into consideration. Extraction of ancient bat guano for fertilizer from a cave on the cliff has caused some destruction in adjacent areas. The collecting practices of some intrepid gatherers are also clearing up portions of the cliff formerly occupied by the plants. Despite its relative inaccessibility, the population may not be secure enough to ensure survival of the species.

Recognizing the new taxon and current status of its only known population, it seems expedient to formulate sound management plans for protection. I suggest:

- 1.) restricting or prohibiting access of unauthorized persons to the cliff;

- 2.) protecting the habitat from disturbances of any kind;
- 3.) studying the potential effect of natural disasters (wildfire, falling rocks, diseases, etc.) and ways to reduce risks; and
- 4.) initiating artificial and natural regeneration experiments to test the feasibility of repopulating certain areas on the cliff and, eventually, of establishing new populations in other areas with appropriate habitat.

The range of *Melocactus perezassoi* is restricted enough to merit protection under Cuban environmental legislation; its vulnerability should justify a petition for national listing as an endangered species.

ACKNOWLEDGMENTS

The present study has been made possible by the facilities provided by the *Jardín Botánico de Cienfuegos* and gratitude is hereby expressed to the management of this institution. Particular mention is to be made of Arabel Cuesta, Resident Principal, whose cooperative spirit and enthusiasm are well known to every visitor. Appreciation extends to Wilfredo Figueredo, former member of the *J.B.C.* staff, who took the lead in the *Melocactus* collecting expedition of April, 1991.

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